

Simulation Results in Support of the High Current Experiment\*

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The High Current Experiment is studying effects which limit the fraction of the beam pipe occupied by beam. Here we present results which compare PIC simulation results to data for electrostatic transport. Previous work, which reconstructed the initial distribution function from measured  $x$ - $y$ ,  $x$ - $x'$  and  $y$ - $y'$  phase spaces, was unable to predict well the beam evolution, presumably because correlations out of these planes could not be measured by the diagnostics. In this paper we present comparisons using new optical measurements of the beam which use transverse slits and a scintillator to add to the information measured.  $x$ - $y'$  and  $x'-y$  correlations have now been measured, though  $x'-y'$  awaits pepperpot measurements. Methods used to reconstruct the distribution function from the data, and simulations using the reconstructed distribution function, will be presented and compared to data. Results will also be compared to those for an idealized (semigaussian) initial distribution function.

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